Building Technology III
New York City College of Technology

Course Day 17
Revit Day 09 (Project Day 6)

The New Academic Building –
Roof Construction : GYM

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GYM Roof : Add New Levels

- Create 2 new levels in elevation or section
- 33’- 8” : Top of GYM Parapet
- 30’- 8” : GYM Roof

• Select all GYM walls and change the “Top Constraint” to “Top of GYM Parapet”
Fix Walls : Select All Instances > In Entire Project

- Select existing masonry wall
- Right Click > Select All Instances > In entire project

- Top Constraint
  Up to level : Top of GYM Parapet
Correct Conflict with Atrium Truss

- In design development one of our most important jobs is to recognize and correct conflicts in the building's construction.
Correct Conflict with Atrium Truss

- Select all of the Atrium Trusses and modify:
- Start Level Offset 36’-0”
- End Level Offset to 36’-0”

- Select the Atrium Walls
- Set the “Top Constraint” to “Atrium Roof”
Roof by Footprint: Flat Roof: Pick walls

- Set Level
- GYM Roof

- Architecture
  - Roof > Roof by Footprint
  - Basic Roof Generic – 12"

- Define Slope Off
- Overhang = 0
- Base Offset (-1’)

Select all 4 inner faces of the gym walls

A triangle indicates this edge defines a roof slope

The double arrow switches the roof from inner to outer

If checked, this edge defines slope

Roof is hosted

Offset (-1 foot)

GYM Roof

Overhang

Project Day 06

GYM ROOF
- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

Roof by Footprint
- Pick Walls
- Overview
- Slope (2) Sides
- Overhang
- Wall Attach Top
- Conflicts
- Slope (4) Sides

Truss
- Attach Top / Bottom
- Overview

Roof by Extrusion
- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

Spline
- Edit Profile
- Update
- Overview

Wrap-Up
Roof by Footprint: Flat Roof

- Select the Atrium Walls
- Set the “Top Constraint” to “Atrium Roof”
Roof by Footprint: Slope (2) sides

- Select (2) opposite sides
- Check Defines Roof Slope (9”/12”)

- Select Roof > Edit Footprint
- You can modify the roof slope

Set these edges to define a slope of 9/12
Roof by Footprint: Slope (2) sides: Add Overhang

- Select all (4) sides
- Set Overhang to (5'-0")

- Select Roof > Edit Footprint

- Add Overhang to the outer face

- Overhang 5'-0"
Roof by Footprint: Walls: Attach Top / Bottom

- Select Wall
- Attach Top / Bottom
- Select Roof

• Revit will not be able to create integral sweep for coping on North/South Facades
Project Day 06

GYM ROOF
• Add Levels
• Fix Walls
• Conflict
• Fix Atrium Truss

Roof by Footprint
• Pick Walls
• Overview
• Slope (2) Sides
• Overhang
• Wall Attach Top
• Conflicts
• Slope (4) Sides

Truss
• Attach Top / Bottom
• Overview

Roof by Extrusion
• Delete Roof
• Set Working Plane
• Start-End-Radius
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Wrap-Up
Notice conflict between Trusses, Roof & Walls

In design development one of our most important jobs is to recognize and correct conflicts in the building construction.

This one we will correct when we work on the atrium design.

Trusses conflict with roof & walls
Roof by Footprint: Slope (4) sides: w/ Overhang

- Select (2) remaining sides
- Check Defines Roof Slope (9”/12”)

Set two remaining edges to define a slope of 9/12
Truss: Attach Top / Bottom

- Select Truss
- Attach Top / Bottom
- Select Roof

- To work on the remaining trusses you will need to work looking up from below
Truss: Attach Top/Bottom

- To work on the remaining trusses you will need to work looking up from below
- View Cube Bottom Corner
- Hide by Category
  - Walls, windows, slabs, foundations, columns
- Highlight objects to hide
- Select Truss
- Attach Top / Bottom
- Select Roof
- Hide by Category
- Concrete beams from basement
Roof Trusses

- Various Views

Project Day 06

GYM ROOF
- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

Roof by Footprint
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- Conflicts
- Slope (4) Sides

Truss
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Wrap-Up
Save File then Delete Roof

- Save your file and add the suffix: 4 Pitched roof with trusses
- Save your file and add the suffix: Roof by extrusion ARC
- Select and Delete the roof

After you delete the roof Revit will need to recalculate walls and trusses that were attached to the roof. You will see the processing.
GYM Roof: Roof by Extrusion: Set Working Plane

- Show working plane
- Set working plane
  - Pick a plane
  - Select east façade of GYM

Truss
  - Attach Top / Bottom
  - Overview

Roof by Extrusion
  - Delete Roof
  - Set Working Plane
  - Start-End-Radius
  - Extrusion Length
  - Attach Top / Bottom
  - Overview

Spline
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Wrap-Up
GYM Roof : Roof by Extrusion

- Default 3D View
- Set working plane to façade
- Go to “back” or “east” view

- Start-End-Radius Arc

Roof by Footprint
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- Conflicts
- Slope (4) Sides

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Roof by Extrusion
- Delete Roof
- Set Working Plane
- Start-End-RADIUS
- Extrusion Length
- Attach Top / Bottom
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Wrap-Up

Level : GYM Roof
GYM Roof : Roof by Extrusion **Start-End-Radius Arc**

- **Start-End-Radius Arc** : Draw in order from 1 to 2 (width of arc) to 3 (height of arc)
GYM Roof: Roof by Extrusion

- Roof extrudes from working plane to extent of building

**New Roof Created**

- Roof extrudes from working plane to extent of building

**Start-End-Radius Arc**
GYM Roof: Roof by Extrusion

- Extrusion Start (0'-0'"")
- Extrusion End (-230'-6'"")

- Extrusion Start (0'-0'"")
- Extrusion End (-144'-0'"")

- Extrusion Start (6'-0'"")
- Extrusion End (-150'-0'"")

Wrapping Up
GYM Roof: Roof by Extrusion

**Attach Top Bottom**

- Select all (4) GYM walls
- Attach Top / Bottom
- Select GYM Roof

- Select all (4) GYM Trusses
- Attach Top / Bottom
- Select GYM Roof

Roof by Footprint
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Truss
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Wrap-Up

Building Tech III
CityTech
Arched Roof

- Isometric

- Interior View

- Exterior View
GYM Roof: Roof by Extrusion: **Edit Profile / Spline**

- Save your file as: Roof by extrusion SPLINE

![Diagram of GYM Roof with options for Save your file as: Roof by extrusion SPLINE]
GYM Roof : Roof by Extrusion : **Edit Profile / Spline**

- Walls and trusses attached to the roof will update to match the new profile
Spline Roof

- Isometric

- Interior View

- Exterior View
Day 17 / Revit Day 09 / Project Day 06 - Wrap Up

GYM ROOF
- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

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